ARE VERTICAL FARMS THE FUTURE?
Climate change is the driving force in evolution, which selects new life forms pre-adapted to changes in the environment. But the rate of change the world’s climate is now subjected to has been accelerated for the last one hundred years. The accelerated rate of warming coincides with the advent of the Industrial Revolution and the widespread use of fossil fuels. Over the last quarter century, the world has witnessed a rapid decline in biodiversity in most terrestrial ecosystems, and the total number of species on the planet will be reduced even further as things heat up over the next fifty years. That we are the root cause of these unwanted changes is now obvious. As Pogo, that well-known comic-strip philosopher, once sagely observed: “We have met the enemy and they is us.”

Health issues, quality of life, and even where we will live as sea levels rise over the next one hundred years are problems that we must face immediately if we are to survive as a species. Do we simply sit there on the tracks as the runaway climate train approaches? Creating a problem is one thing, but realizing the causes of the problem, then taking radical measures to correct it, is yet another. One solution to slowing down climate change is to grow most of our food crops indoors and give a significant portion of farmland back to nature. This would allow the land to repair itself. Many examples supporting this “no cost” mechanism for restoration of the environment already exist. For instance, in 1620, an estimated 90–95 percent of the Northeast was covered with hardwood forest; by the mid-1800s, 54 percent of New York and 67 percent of southern New England was either in pasture or plowed for food production. But agriculture in the region largely failed due to the poor soil types and the long, cold winters. Nature eventually reclaimed the abandoned farmland, and today, forests dominate New England and New York State once again, occupying 72 percent of the landscape. The same has happened in the Korean peninsula’s demilitarized zone, or DMZ. Created in 1953, this approximately 400-square-mile strip of land, established to act as a buffer between North and South Korea, has since become its own a habitat for endangered animals and plants. There are numerous other cases that provide strong evidence for a “leave it alone” policy for environmental repair.

But we still need to feed some 6.8 billion people, with an additional three billion on the way by 2050, according to the United Nations. How can this be achieved without further encroaching into natural systems? The present iteration of indoor farming is not without its problems. They tend to be too far away from populated centers. Crops have to be harvested before ripeness and shipped many miles to reach the tables of urban dwellers, and consequently there is produce spoilage and the attendant loss of sales. A new way of farming must replace what currently exists. Controlled environment agriculture (CEA) is one promising approach to solving this problem. It already exists in many places throughout the world, and has resulted in a string of commercially successful greenhouse operations, such as EuroFresh Farms in Wilcox, Arizona. Bringing food production inside the cities by stacking high-tech greenhouses on top of...
The top twenty cities in the United States have an agricultural footprint roughly equivalent to the state of Montana.

The current exhibition at Cooper-Hewitt, National Design Triennial: Why Design Now?, features a prototype of a vertical farm, the award-winning Eco-Laboratory, a collaborative effort between myself and Weber Thompson Architects in Seattle. Our vision includes a multi-story experimental farm, an artificial wetland to remediate grey water, outdoor farm plots, and a community center. Once built, citizens who want to get involved in urban agriculture can come to the Eco-Laboratory and learn the ins and outs of urban-based outdoor and indoor farming, taught in hands-on applied courses featuring hydroponics, aeroponics, and aquaculture. The city of Newark, New Jersey, has expressed serious interest in seeing a prototype vertical farm built within the next year, and similar projects are underway in Chicago, Milan, Italy, and other densely populated centers throughout the world. The proposed Newark Vertical Farm represents an incorporation of integrated and overlapping sustainable design features. More than just a vertical farm, it is a research and development program for sustainable design in an urban context. Part demonstration project, part laboratory, the purpose is to provide a complex in which vertical farming can be done on a large scale with no need for pesticides, fertilizers, or herbicides.

Other can help overcome the above challenges. “Vertical farm” is the term I came up with for these high-rise farms. They have many potential virtues, among them the guarantee that we will always have an abundant, robust, and safe food supply where most of us choose to live. The vertical farming concept begins with a simple idea: grow food in a climate-controlled multi-story building free of pollutants, pesticides, and seasons while producing the highest-quality produce in an urban environment. From ten-story structures to dragonfly wing-inspired behemoths that tower over Manhattan, vertical farms are but one of a host of solutions needed to address the complexities of bringing food to people.

Other can help overcome the above challenges. “Vertical farm” is the term I came up with for these high-rise farms. They have many potential virtues, among them the guarantee that we will always have an abundant, robust, and safe food supply where most of us choose to live. The vertical farming concept begins with a simple idea: grow food in a climate-controlled multi-story building free of pollutants, pesticides, and seasons while producing the highest-quality produce in an urban environment. From ten-story structures to dragonfly wing-inspired behemoths that tower over Manhattan, vertical farms are but one of a host of solutions needed to address the complexities of bringing food to people.

The current exhibition at Cooper-Hewitt, National Design Triennial: Why Design Now?, features a prototype of a vertical farm, the award-winning Eco-Laboratory, a collaborative effort between myself and Weber Thompson Architects in Seattle. Our vision includes a multi-story experimental farm, an artificial wetland to remediate grey water, outdoor farm plots, and a community center. Once built, citizens who want to get involved in urban agriculture can come to the Eco-Laboratory and learn the ins and outs of urban-based outdoor and indoor farming, taught in hands-on applied courses featuring hydroponics, aeroponics, and aquaculture. The city of Newark, New Jersey, has expressed serious interest in seeing a prototype vertical farm built within the next year, and similar projects are underway in Chicago, Milan, Italy, and other densely populated centers throughout the world. The proposed Newark Vertical Farm represents an incorporation of integrated and overlapping sustainable design features. More than just a vertical farm, it is a research and development program for sustainable design in an urban context. Part demonstration project, part laboratory, the purpose is to provide a complex in which vertical farming can be done on a large scale with no need for pesticides, fertilizers, or herbicides.

Other can help overcome the above challenges. “Vertical farm” is the term I came up with for these high-rise farms. They have many potential virtues, among them the guarantee that we will always have an abundant, robust, and safe food supply where most of us choose to live. The vertical farming concept begins with a simple idea: grow food in a climate-controlled multi-story building free of pollutants, pesticides, and seasons while producing the highest-quality produce in an urban environment. From ten-story structures to dragonfly wing-inspired behemoths that tower over Manhattan, vertical farms are but one of a host of solutions needed to address the complexities of bringing food to people.

The current exhibition at Cooper-Hewitt, National Design Triennial: Why Design Now?, features a prototype of a vertical farm, the award-winning Eco-Laboratory, a collaborative effort between myself and Weber Thompson Architects in Seattle. Our vision includes a multi-story experimental farm, an artificial wetland to remediate grey water, outdoor farm plots, and a community center. Once built, citizens who want to get involved in urban agriculture can come to the Eco-Laboratory and learn the ins and outs of urban-based outdoor and indoor farming, taught in hands-on applied courses featuring hydroponics, aeroponics, and aquaculture. The city of Newark, New Jersey, has expressed serious interest in seeing a prototype vertical farm built within the next year, and similar projects are underway in Chicago, Milan, Italy, and other densely populated centers throughout the world. The proposed Newark Vertical Farm represents an incorporation of integrated and overlapping sustainable design features. More than just a vertical farm, it is a research and development program for sustainable design in an urban context. Part demonstration project, part laboratory, the purpose is to provide a complex in which vertical farming can be done on a large scale with no need for pesticides, fertilizers, or herbicides.

Other can help overcome the above challenges. “Vertical farm” is the term I came up with for these high-rise farms. They have many potential virtues, among them the guarantee that we will always have an abundant, robust, and safe food supply where most of us choose to live. The vertical farming concept begins with a simple idea: grow food in a climate-controlled multi-story building free of pollutants, pesticides, and seasons while producing the highest-quality produce in an urban environment. From ten-story structures to dragonfly wing-inspired behemoths that tower over Manhattan, vertical farms are but one of a host of solutions needed to address the complexities of bringing food to people.

The current exhibition at Cooper-Hewitt, National Design Triennial: Why Design Now?, features a prototype of a vertical farm, the award-winning Eco-Laboratory, a collaborative effort between myself and Weber Thompson Architects in Seattle. Our vision includes a multi-story experimental farm, an artificial wetland to remediate grey water, outdoor farm plots, and a community center. Once built, citizens who want to get involved in urban agriculture can come to the Eco-Laboratory and learn the ins and outs of urban-based outdoor and indoor farming, taught in hands-on applied courses featuring hydroponics, aeroponics, and aquaculture. The city of Newark, New Jersey, has expressed serious interest in seeing a prototype vertical farm built within the next year, and similar projects are underway in Chicago, Milan, Italy, and other densely populated centers throughout the world. The proposed Newark Vertical Farm represents an incorporation of integrated and overlapping sustainable design features. More than just a vertical farm, it is a research and development program for sustainable design in an urban context. Part demonstration project, part laboratory, the purpose is to provide a complex in which vertical farming can be done on a large scale with no need for pesticides, fertilizers, or herbicides.

Other can help overcome the above challenges. “Vertical farm” is the term I came up with for these high-rise farms. They have many potential virtues, among them the guarantee that we will always have an abundant, robust, and safe food supply where most of us choose to live. The vertical farming concept begins with a simple idea: grow food in a climate-controlled multi-story building free of pollutants, pesticides, and seasons while producing the highest-quality produce in an urban environment. From ten-story structures to dragonfly wing-inspired behemoths that tower over Manhattan, vertical farms are but one of a host of solutions needed to address the complexities of bringing food to people.